EXHIBIT 5

Expert Report of David Genereux, Ph.D.

Dew, et al. v. E.I. Du Pont de Nemours and Company, et al.

Trial Plaintiffs: Abril, Davis, Faircloth, Pini, Riggins-Branch, and Stevens

Submitted by David Genereux, Ph.D.
July 25, 2023

Estimating the duration of PFAS persistence at the Trial Plaintiffs' properties

David Genereux, Ph.D.

Qualifications (curriculum vitae is included at the end of the report)

I am a professor of hydrogeology at North Carolina State University. I have a BS in Geology/Chemistry from University of Delaware, MS in Civil Engineering from MIT, and PhD in Hydrology from MIT. Since 2000 I have been on the faculty at NC State University, where I carry out research and teaching in hydrogeology. Prior to that I was on the faculty at Florida International University (FIU) in Miami, where I held joint appointments between the Department of Geology and two research centers: the Drinking Water Research Center and the Southeast Environmental Research Center. During 2009-2014 I was the Associate Director for Research in the Water Resources Research Institute of the University of North Carolina, and during 2016-2018 served on the board of directors of the Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI), including a year as chair of the board (2017). I've been an associate editor for scientific journals (*Water Resources Research* and the *Journal of Contaminant Hydrology*), served on expert panels at the National Science Foundation (NSF), Environmental Protection Agency (EPA), and Department of Agriculture (USDA), and served as both a member and chair of the Water Quality Technical Committee of the American Geophysical Union (AGU).

My research focuses on chemical hydrogeology and coupled fluxes of water and chemicals through and out of groundwater systems, including agricultural nutrients, volatile organic compounds (VOCs), and more recently GenX and related per- and polyfluoroalkyl substances (PFAS). Trace gas exchange between air and water is also a focus area. Since 2018, I have carried out research on PFAS in groundwater near the Fayetteville Works facility in North Carolina. My work has focused on quantifying hydrologic fluxes of PFAS in the environment, specifically the discharge of PFAS from groundwater to tributary streams of the Cape Fear River, and mass discharges of PFAS in the Cape Fear River. That work was published in leading peer-reviewed scientific journals. I have also collected data on groundwater PFAS concentrations and age; my PhD students and I are analyzing those data for publication, with the goal of providing quantitative data-based hindcasts and forecasts of PFAS concentrations in the groundwater discharging into streams and drinking water wells.

Compensation & Prior Testimony

- I have not testified in any case during the previous 4 years.
- My rate is $250 per hour.

Abbreviations Used in This Report

BCA = Black Creek Aquifer
H = aquifer thickness
NCDEQ = North Carolina Department of Environmental Quality
PEM = partial exponential model
PFAS = per- and polyfluoroalkyl substances
R = groundwater recharge rate, length/time
Φ = aquifer porosity
ΣPFAS = total quantified PFAS concentration (sum of the concentrations of all quantified PFAS in a water sample)

1. Summary of Opinions

- PFAS are expected to persist at Plaintiffs' wells for the foreseeable future.

- A model of groundwater age at the screens of Plaintiffs' wells suggests that PFAS already in the ground from previous years of high emission, 1980-2019, may persist for decades and possibly more than one hundred years at some wells. These model-based estimates are conservative in that processes not included in the model (especially back-diffusion from clay layers) might significantly increase the duration of PFAS presence at the wells.

- Recent data on atmospheric deposition of PFAS in the area suggest the continued indefinite presence of PFAS in groundwater at the Plaintiff's wells, even past the expected duration of persistence of PFAS from the high emission years.

2. Introduction

The objective of this work was to estimate the duration of persistence of PFAS (per- and polyfluoralkyl substances) in the groundwater at six private drinking water wells, referred to here as the study wells (Table 1), near the Fayetteville Works south of Fayetteville, North Carolina.

Resident Name	Address	Aquifer
Abril	4216 Marshwood Lake Road, Fayetteville, NC	Black Creek
Davis	7242 Fire Department Road, Fayetteville, NC	surficial
Faircloth	3884 Tranquility Road, Fayetteville, NC	Black Creek
Pini	405 Jax Court, Fayetteville, NC	surficial
Riggins-Branch	21 West Shaw Mill Road, Saint Pauls, NC	surficial
Stevens	7619 NC Highway 87 South, Fayetteville, NC	surficial

Table 1. *Six study wells.*

To address this objective, two types of information were considered:

1. A groundwater model was used to estimate the age of groundwater at the screens of the six study wells (Section 3). This information was used to estimate the timescale for persistence at the wells of PFAS already in the groundwater from the "high emission years" 1980-2019 that pre-date full operation of the thermal oxidizer at Chemours (Chemours 2020).
2. Data on atmospheric deposition of PFAS were obtained from the North Carolina Department of Environmental Quality (NCDEQ) and were used to estimate the PFAS concentration in atmospheric deposition during 2020-2022 (Section 4). This information was used to evaluate whether PFAS might persist in the groundwater and thus at the study wells even after PFAS from 1980-2019 is estimated to no longer be present at the wells.

3. Modeling Methods

3.1. Partial Exponential Model (PEM)

The Partial Exponential Model (PEM) was used to estimate the age of groundwater at the screen of each study well. Groundwater age refers to the time the water spent in the aquifer as it moved from the water table to the well screen. The relevant equations for the PEM are found in Appendix A of Jurgens et al. (2012). The PEM is one of a class of spatially-averaged groundwater models known as "lumped-parameter models", which have been widely used in the study of groundwater age and chemical transport, including at drinking water wells (for example, Eberts et al. 2012; Visser et al. 2013; Green et al. 2014; Akesson et al. 2015; Alikhani et al. 2016). The PEM is based on the Exponential Model (EM) which shows that groundwater age will increase exponentially with depth in an aquifer having uniform groundwater recharge and thickness (e.g., Jurgens et al. 2021; Solomon et al. 2006). The PEM is "partial" in the sense that it describes the distribution of groundwater age at well screens that span only part of the aquifer thickness.

The PEM is well-suited for estimating age at the six study wells. It fits the well construction, in the sense that the six study wells have screens that do not span the full thickness of the aquifer. The area around the study wells has a relatively low percentage of paved impervious surface, suggesting recharge is likely broadly distributed over the land surface. Aquifer thickness is somewhat variable (as it is everywhere) but not greatly so; for example, for the three study wells screened in the surficial aquifer located near each other and the Fayetteville Works (Davis,

Riggins-Branch, and Stevens), the standard deviation of the aquifer saturated thickness was estimated to be only 6%. The PEM has been applied in other published work on groundwater contaminants at wells, including models of nitrate at wells (Jurgens et al. 2016).

The PEM accounts for the ordinary expected condition that groundwater age will increase with depth in areas of groundwater recharge, leading to groundwater age being older at the bottom of a well screen than at the top. The work reported here focused on groundwater age at the bottoms of the well screens, because groundwater contamination is expected to persist longest at the bottoms of well screens in situations in which younger cleaner groundwater is recharging into an already-contaminated aquifer, after contaminant source control.

3.2. Parameter Values Used as Input to the PEM

3.2.1. Groundwater Recharge Rate

McMahon et al. (2011) reported a recharge rate of 100 mm/yr at a site in the NC Coastal Plain about 142 km northeast of the Fayetteville Works. Solomon et al. (2015) reported a recharge rate of 200 mm/yr at a site in the NC Coastal Plain about 107 km northeast of the Fayetteville Works. These two recharge rates were used in the PEM to estimate groundwater age at the study wells.

Two of the study wells (Abril and Faircloth) are screened in the Black Creek Aquifer, while the other four are screened in the overlying surficial aquifer. Winner and Coble (1996, page I36) concluded that "Recharge to the Black Creek aquifer occurs mainly by downward percolation from the overlying aquifers." Groundwater recharge into the surficial aquifer is likely partitioned into two main outputs from that aquifer: drainage to streams and springs, and recharge to the underlying Black Creek Aquifer, making recharge into the Black Creek Aquifer smaller than recharge to the surficial aquifer and likely closer to the lower of the two rates used in this work (100 mm/yr).

3.2.2. Aquifer Porosity

A value of 0.39 was used for the porosity in models of the surficial aquifer study wells, and 0.40 in models of the Black Creek Aquifer study wells, based on porosity data in Geosyntec (2019a).

3.2.3. Saturated Thickness of the Aquifer

The saturated thickness of the aquifer at each study well was calculated as the elevation of the water table minus the elevation of the bottom of the aquifer.

The elevation of the water table at each study well was calculated as the ground surface elevation determined in Google Earth minus the depth to the water table measured on 3/31/2023. Depth to the water table was measured inside three of the study wells (Stevens, Faircloth, and Riggins-Branch) and inside piezometers installed near the other three study wells (Abril, Davis, and Pini) (see Duncklee Expert Report).

Elevation of the bottom of the aquifer in which each study well is screened was estimated using hydrostratigraphic interpretations of nearby NCDEQ boreholes (see https://www.ncwater.org/?page=348):

- Pini well: The elevation of the bottom of the aquifer was taken as the average elevation of the top of Black Creek confining unit for five nearby NCDEQ boreholes to the south and east

of the Pini well (Jim Dozer, Howard Williams, DWR Seabrook School Station, and the two Town of Stedman boreholes)

- Stevens well: The elevation of the bottom of the aquifer was taken as the elevation of the top of the Black Creek confining unit at the NCDEQ Dupont Corporation borehole.
- Davis and Riggins-Branch wells: The elevation of the top of the Black Creek confining unit was interpolated as a plane among 3 NCDEQ boreholes (Dupont Corp., Town of St. Pauls, and the northern Town of Parkton well), and the elevation of the bottom of the aquifer at each of the two study wells was taken as the elevation of the interpolated plane at the location of the study well.
- Abril and Faircloth wells: The elevation of the bottom of the aquifer was taken as the average elevation of the top of the Upper Cape Fear confining unit at two nearby NCDEQ boreholes (Dupont Corp and DWR Dupont Station).

3.2.4. Depths Below Water Table for the Top and Bottom of the Well Screens

The PEM model requires the depths below the water table of the top of the well screen and the bottom of the well screen, z_1 and z_2 respectively in Figure A1 of Jurgens et al. (2012). Values of z_1 and z_2 were obtained for the six study wells as follows:

- The depth of the well screen (top and bottom) below ground surface was determined through well construction records (Abril, Davis, and Pini wells) or from borehole video taken inside the well (Stevens, Faircloth, and Riggins-Branch wells).
- At each well, the elevation of the top of the well screen was calculated as the ground surface elevation minus the depth of the top of the well screen, and the elevation of the bottom of the well screen was calculated as the ground surface elevation minus the depth of the bottom of the well screen.
- At each well, the value of z_1 was taken to be the elevation of the water table minus the elevation of the top of the screen, and the value of z_2 was taken to be the elevation of the water table minus the elevation of the bottom of the screen.

The well screens in the two Black Creek Aquifer wells (Abril and Faircloth) were deeper below the water table compared to the screens of the other four study wells (Figure 1), suggesting groundwater ages would be older at the two Black Creek Aquifer wells.

3.3. Monte Carlo Approach to Uncertainty

A Monte Carlo approach (e.g., Jensen et al. 2022) was used to assess the sensitivity of modeled groundwater ages to uncertainty in the values of recharge rate (R), porosity (Φ), and saturated aquifer thickness (H). At each study well, 2000 simulations of groundwater age were made in an automated procedure in which the values of R, Φ, and H for each simulation were chosen at random from distributions defined by the best estimates and estimated standard deviations of each parameter. R was 200 or 100 mm/yr ± 25 mm/yr. Φ in the surficial aquifer was 0.39 ± 0.04, and Φ in the Black Creek Aquifer was 0.41 ± 0.06. The value of saturated thickness varied among the study wells, and thickness ranges used in the Monte Carlo process were ±5 ft for the four wells in the surficial aquifer and ±10 ft for the two wells in the Black Creek Aquifer.

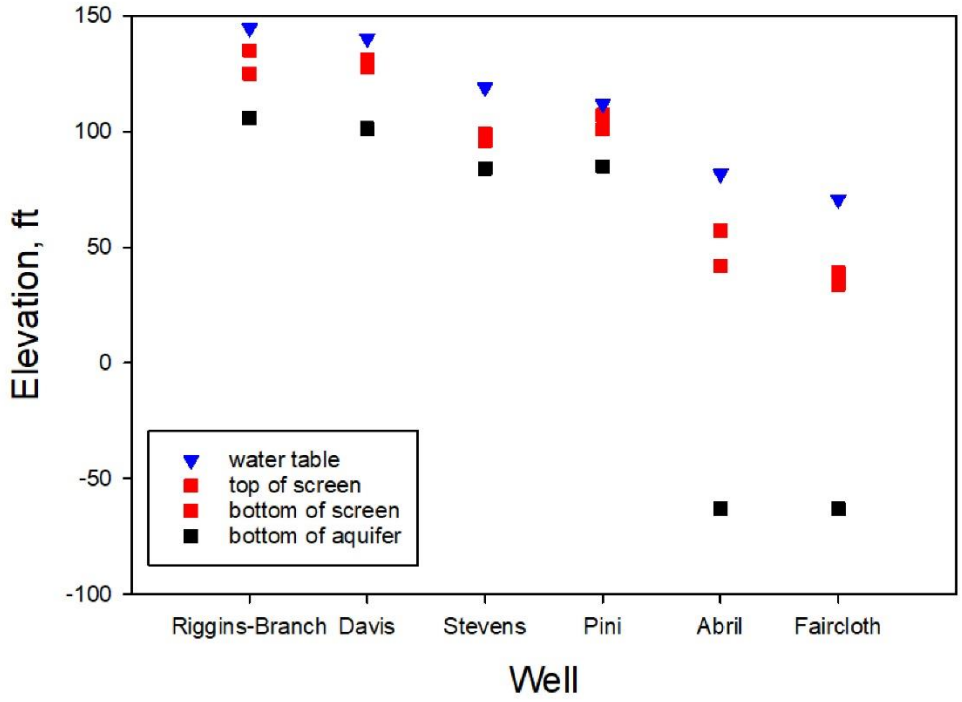

Figure 1. *Vertical placement of the six well screens relative to the water table and bottom elevation of the aquifers.*

For each study well:

1. The Monte Carlo process yielded 2000 values of groundwater age at the bottom of the well screen, based on 2000 different combinations of R, Φ, and H.
2. The 2000 age values were rank-ordered from smallest age (number 1) to largest (number 2000), and ages number 50 and 1950 defined the 95% confidence limits on age, i.e., the middle 1900 of the 2000 age values (95% of the values) fell between the 50^{th} and 1950^{th} largest ages.
3. The mean age and the 95% confidence limits on age were added to the year 2021; 2021 was taken as the first year of greatly reduced PFAS concentrations in groundwater recharge, following the thermal oxidizer at Chemours becoming fully operation on 27 December 2019 (Chemours 2020). This amounts to an assumption that the major PFAS in the study area have a roughly 1 year transit time through the unsaturated zone (assumptions are further discussed below).
4. The mean groundwater age from the Monte Carlo process, plus 2021, represents the best estimate of $\mathbf{t_0}$, the year in which PFAS from the high emission years 1980-2019 would likely be gone from the well if PFAS emissions to air had been eliminated at the end of 2019. However, as explained below, other factors not included in the PEM could extend the persistence of PFAS at the wells to later years, and NCDEQ data suggest that PFAS emissions to air were not eliminated at the end of 2019.

3.4. Assumptions in PEM Modeling

General assumptions of the PEM include the following:

1. The PEM assumes steady-state hydrology: no major changes in hydrology over time due to

climate change or land use change or other factors. It also assumes uniform groundwater recharge and aquifer thickness.
2. The PEM does not explicitly take account of aquifer heterogeneity, though Jurgens et al. (2016) concluded that "the PEM can provide meaningful predictions of age distributions and concentration trends for long-screened wells, even in systems where heterogeneity can complicate the distribution of age."

Also, in the specific PEM application to estimate t_0 at the study wells, three other assumptions made were "conservative" in the sense that violations of these assumptions would lead to longer PFAS persistence at the study wells (to years beyond t_0):

1. The lag time for PFAS transport through the unsaturated zone, from ground surface to water table, was about 1 year (see Section 3.3). This assumption is consistent with the finding that groundwater recharged in 1982 and 1985, within 2-5 years of the start of atmospheric emissions in 1980, was heavily contaminated with PFAS (Jensen et al. 2023). If unsaturated zone transit time is longer in some areas, PFAS persistence would also be longer at wells in those areas.
2. Retardation factors in groundwater are generally thought to be quite small for GenX and similar perfluoroether acids (Yan et al. 2020; Geosyntec 2019b), and no retardation was assumed in this report. If significant retardation does occur for any PFAS in the groundwater system, PFAS persistence would be longer than estimated using the PEM.
3. Back-diffusion of contaminants out of clay layers in groundwater systems is well known as a process that can continue to contaminate groundwater aquifers for many years after other sources of contaminant input have been controlled (Brooks et al. 2021; Parker et al. 2008). Brooks et al. state "In some cases, it has been noted that plumes may persist for centuries due to back-diffusion". The presence of prominent clay layers both within and below the surficial aquifer in the Fayetteville Works area (e.g., Geosyntec 2019a, Figures 10-2 to 10-6) suggests the potential for back-diffusion to extend the timeline for persistence of PFAS in the groundwater there. The PEM model does not include back-diffusion of PFAS from clay layers to sandy aquifer materials; if back-diffusion is important near the study wells, the PEM could significantly underestimate PFAS persistence at the wells.

Of the three conservative assumptions listed above, number 3 is the one most likely to be violated in the Fayetteville Works area and the one for which violation could be most significant. Back-diffusion of PFAS, out of clays and into sands, seems possible in this area and might significantly prolong PFAS duration in the more mobile groundwater in sandy layers. The issue is significant because it might cause PFAS to persist at Plaintiff's wells much longer than indicated in the results table in Section 5 of this report.

4. Recent/Current PFAS Input to Groundwater

The year t_0 at a given study well represents the year in which PFAS from the high emission years 1980-2019 would likely be gone from the well if PFAS emissions to air had been eliminated at the end of 2019. But PFAS emissions to air have continued past 2019, and NC DEQ data on atmospheric deposition of PFAS suggest continuing PFAS inputs to groundwater.

Data on wet and dry atmospheric deposition of PFAS were obtained from NCDEQ for 2020-2022 and were used to estimate current concentrations of GenX and total quantified PFAS

(ΣPFAS) in groundwater recharge. Total quantified PFAS refers to the sum of all reported concentrations of PFAS in a wet or dry deposition sample. The data used were from NCDEQ atmospheric deposition stations 2, 19, 21, 24/33, and 25/32 (https://www.deq.nc.gov/news/key-issues/genx-investigation/air-quality-sampling). For 2020-2022, the total mass of atmospheric deposition of GenX and ΣPFAS at each station was divided by the total volume of rain water accumulated in the wet deposition collector. The resultant concentrations at the five stations were averaged to give a spatial and temporal average concentration (averaged over 5 stations for 3 years) for both GenX and ΣPFAS in atmospheric deposition in the area during 2020-2022.

5. Results

5.1. Duration of PFAS Persistence Based on Groundwater Age at the Wells

Results indicate a range of values for the groundwater age at the bottoms of the six well screens and thus a range of values for $\mathbf{t_0}$, the year in which PFAS from the high emission years 1980-2019 would likely be gone from the well if PFAS emissions to air had been eliminated at the end of 2019 (Table 2).

At the short end of the range are the Pini and Davis wells, with $\mathbf{t_0}$ expected in the range of 2030 to 2040, depending on recharge rate, and upper confidence limits into the 2050s. This is consistent with these wells having short screens close to the water table (Figure 1). PFAS persistence is expected to be much longer at the Stevens, Faircloth, and Abril wells, with $\mathbf{t_0}$ values from 2045 to 2083 and upper confidence limits much farther into the future, more than 100 years from now at the lower recharge rate (Table 2). PFAS persistence at the Riggins-Branch well was intermediate with $\mathbf{t_0}$ of 2038 to 2057 and upper confidence limits of 2045 to 2087.

PFAS from the high emission years 1980-2019 may persist for decades at all six study wells. Persistence could extend much further into the future for any PFAS experiencing significant retardation in the subsurface (e.g., PFOA and PFOS; Brusseau 2018) and if back-diffusion from clay is significant.

well	aquifer	R = 100 mm/yr			R = 200 mm/yr		
		L	t_0	U	L	t_0	U
Pini	surficial	2031	2039	2057	2027	2030	2033
Davis	surficial	2032	2040	2055	2027	2030	2034
Riggins-Branch	surficial	2041	2057	2087	2033	2038	2045
Stevens	surficial	2049	2072	2138	2037	2045	2062
Faircloth	Black Creek	2052	2078	2129	2039	2048	2060
Abril	Black Creek	2055	2083	2144	2040	2050	2063

Table 2. *Summary of values of* $\mathbf{t_0}$ *(the year in which PFAS from the high emission years 1980-2019 would likely be gone from the well if PFAS emissions to air had been eliminated at the end of 2019), and the lower and upper 95% confidence limits on* t_0 *(L and U, respectively). Color intensity in the table cells is greater for years farther into the future. Results are shown for two groundwater recharge rates, R = 200 mm/yr and R = 100 mm/yr.*

5.2. PFAS in Recent Atmospheric Deposition

Based on the methods and NCDEQ data described earlier, atmospheric deposition in the Fayetteville Works area was estimated to average 6.3 ng/L for GenX and 26.2 ng/L for ΣPFAS across the five measurement stations during 2020-2022. These concentrations are likely representative of those in recent groundwater recharge, or at least lower limits of concentrations in recharge if PFAS are further concentrated by evaporation in the unsaturated zone. Thus, while the estimates of t_0 and its 95% confidence limits from the PEM are relevant for understanding the persistence of PFAS from the high emission years of 1980-2019 at the study wells, the most recent atmospheric deposition data suggest a continuing PFAS input to groundwater for which no end date can be estimated.

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Education

- Massachusetts Institute of Technology, Cambridge, MA

Ph.D. in Hydrology, Department of Civil and Environmental Engineering, September 1991.
Laboratory Graduate Participation Fellow, Oak Ridge National Lab, October 1989 to June 1991.

- Massachusetts Institute of Technology, Cambridge, MA

M.S. in Civil Engineering, February 1988.

- University of Delaware, Newark, DE

B.S. in Geology, minor in Chemistry, June, 1984. Freshman Honors Program, Dean's Scholar Program, Sharp Scholarship, and Undergraduate Achievement Award.

Academic Employment

- Department of Marine, Earth, & Atmospheric Sciences, North Carolina State University, Raleigh, NC (http://www.meas.ncsu.edu/): Professor (2007-present), Associate Professor (2000-2007)
- Water Resources Research Institute of the University of North Carolina, Raleigh, NC (http://www.ncsu.edu/wrri/): Associate Director for Research (2009 – 2014)
- Geology Department, and Southeast Environmental Research Center, Florida International University, Miami, FL: Associate Professor (1997-2000)
- Geology Department, and Drinking Water Research Center (College of Engineering), Florida International University, Miami, FL: Assistant Professor (1992-1997)
- Department of Civil Engineering, MIT, Cambridge, MA: Postdoctoral Research Associate (September 1991 – February 1992)

Board Membership
Board of Directors, Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI, https://www.cuahsi.org/), 2016-2018; Board Chair, 2017

Peer-Reviewed Publications (*student author †post-doc author)
Humphrey, C.E., D.K Solomon, T.E. Gilmore, M.R. MacNamara, D.P. Genereux, A.R. Mittelstet, C. Zeyrek, V.A. Zlotnik, C.R. Jensen. 2023. Spatial variation in transit time distributions of groundwater discharge to a stream overlying the Northern High Plains Aquifer, Nebraska, USA. In review, *Water Resources Research*.

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Genereux, D.P. 2019. Quantifying coupled water and contaminant fluxes from groundwater systems to streams: field methods and examples from North Carolina. Invited presentation at the annual conference of the Water Resources Research Institute of UNC, March 2019, Raleigh NC.

Koropeckyj-Cox*, L., D.P. Genereux, D.R.U. Knappe, Z. Hopkins*, L. Cheng*. 2019. Field determination of PFAS flux from groundwater to streams in a contaminated area of the NC coastal plain. Presented at the annual conference of the Water Resources Research Institute of UNC, March 2019, in Raleigh NC.

Koropeckyj-Cox*, L., D.P. Genereux, D.R.U. Knappe, Z. Hopkins*, L. Cheng*. 2019. Field determination of PFAS flux from groundwater to streams in a contaminated area of the NC

coastal plain. Presented at the American Council of Engineering Companies (ACEC) Emerging Contaminants Conference, April 23-24, 2019, Raleigh NC.

Koropeckyj-Cox*, L., D.P. Genereux, and D. Knappe. 2018. Field determination of the PFAS flux from groundwater to streams in a contaminated area of the North Carolina coastal plain. Presented at the American Geophysical Union Fall Meeting, Washington DC, December 2018.

Hattenberger*, D., D.P. Genereux. 2018. Comparing carbon dioxide and methane emissions from restored and unrestored streams in the Piedmont region of NC. American Geophysical Union Spring 2018 Poster Showcase.

Genereux, D.P. 2018. The nitrate goes in, but when will it come out? Groundwater transit times in the NC coastal plain. Invited presentation in the Department of Civil, Construction, and Environmental Engineering, NC State University, October 2018.

Stewart-Maddox*, N., M.D. Frisbee, C.L. Andronicos, D.P. Genereux, and Z.P. Meyers. 2017. Using the geochemical kinetics and $^{87}Sr/^{86}Sr$ ratios of a complex reworked aquifer to identify the regional extent of interbasin groundwater flow and its impact on regional baseflow generation. Presented at the Geological Society of America Conference, Seattle, WA, October 2017. *Geological Society of America Abstracts with Programs*, Vol. 49, No. 6, ISSN 0016-7592, doi: 10.1130/abs/2017AM-300777

Genereux, D.P. 2017. The nitrate goes in, but when will it come out? Groundwater transit times in the NC coastal plain. Invited presentation in the Department of Geological Sciences, East Carolina University, September 2017.

Clay, K., D.P. Genereux, and D. Knappe. 2017. Temporal variation in groundwater and VOC flux through a sandy streambed. American Geophysical Union Spring 2017 Poster Showcase. (Third place winner in the graduate student category, https://education.agu.org/virtual-poster-showcase/recognition/winners-2017)

Genereux, D.P. 2017. The nitrate goes in, but when will it come out? Groundwater transit times in the NC coastal plain. Invited presentation in the Department of Marine, Earth, Atmospheric Sciences, NC State University, 24 April 2017.

Genereux, D.P. 2017. The nitrate goes in, but when will it come out? Groundwater transit times in the NC coastal plain. Invited presentation, Duke University Water Symposium on Managing Groundwater – Surface Water Interactions in the South, 24 March 2017.

Genereux, D.P. 2017. The nitrate goes in, but when will it come out? Groundwater transit times in the NC coastal plain. Invited presentation, Department of Earth, Atmospheric, and Planetary Sciences, Purdue University, 23 March 2017.

Ayub*, R., D.R. Obenour, A.J. Keyworth, D.P. Genereux, and K. Mahinthakumar. 2016. Vulnerability assessment of groundwater resources by nutrient source apportionment to

individual groundwater wells: A case study in North Carolina. Presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2016.

Solomon, D.K., T.E. Gilmore*, D.P. Genereux, J. Georgek, V. Heilweil, and J.E. Solder*. 2016. Characterizing unconfined aquifers using seep- and stream-based measurements of groundwater age. Geological Society of America *Abstracts with Programs,* Vol. 48, No. 7, doi 10.1130/abs/2016AM-282088. Presented at the Geological Society of America Annual Meeting, Denver, CO, October 2016.

Genereux, D.P. 2016. Understanding water resources in the coastal plain: giving context to regional challenges. Invited presentation at the conference "Freshwater in the North Carolina Coastal Plain: Understanding and Preparing for 21st Century Challenges", New Bern, NC, 16 February 2016 (https://wrri.ncsu.edu/wrri-events/coastal-plain/).

Solomon, D.K., D.P. Genereux, T.E. Gilmore*, and J.E. Solder*. 2015. Transit times in a shallow aquifer from tracer measurements in the aquifer and a gaining stream. Invited talk at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2015.

Oviedo-Vargas†, D., D. Dierick†, D.P. Genereux, S.F. Oberbauer, C.L. Osburn. 2015. Regional groundwater discharge drives high carbon dioxide emissions from a lowland tropical rainforest stream. Presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2015.

Barnett*, E., C.L. Osburn, D. Oviedo-Vargas†, D.P. Genereux, S.F. Oberbauer, and D. Dierick†. 2015. The influence of regional groundwater on the dissolved organic matter in Costa Rican streams. Presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2015.

Barros, A.P., A.M. Wilson, D.K. Miller, J. Tao, D.P. Genereux, O. Prat, W.A. Petersen, N.A. Brunsell, M.D. Petters, and Y. Duan. 2015. Science-grade observing systems as process observatories: mapping and understanding nonlinearity and multiscale memory with models and observations. Invited presentation at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2015.

Babuin*, J.L., D.P. Genereux, and D.R.U. Knappe. 2015. Coupled groundwater and volatile organic compound fluxes through a streambed contribute to off-site migration of contaminants in a coastal plain stream, North Carolina. Geological Society of America *Abstracts with Programs*, Vol. 47, No. 7, p.320, https://gsa.confex.com/gsa/2015AM/webprogram/Paper265579.html. Presented at the Geological Society of America Annual Meeting, Baltimore, Maryland.

Gilmore*, T.E., D.P. Genereux, D.K. Solomon, K. Farrell, H. Mitasova. 2015. Aquifer nitrate legacy and dynamics: observations from well nests and streambed sampling. Presented at the annual conference of the American Society of Agricultural and Biological Engineers (ASABE), New Orleans, LA, July 2015.

Solomon, D.K., T.E. Gilmore*, J. Solder*, B. Kimball, and D.P. Genereux. 2015. Determining groundwater transit times using SF_6 in streams. Presented at the IAEA (International Atomic Energy Agency) Isotope Hydrology Symposium, Vienna, Austria, May 2015.

Genereux, D.P. 2015. Field study of groundwater transit times and pollutant nitrogen fluxes at the groundwater-stream interface in the North Carolina coastal plain. Invited presentation, Department of Environmental Engineering and Earth Sciences, Clemson University, January 2015.

Oberbauer, S.F., D.P. Genereux, C.L. Osburn, D. Dierick†, D. Oviedo-Vargas†. 2014. Availability of deep groundwater-derived CO_2 for plant uptake in a Costa Rican rainforest. Presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.

Gilmore*, T.E., D.P. Genereux, K. Solomon, H. Mitasova,, M. Burnette*. 2014. Vertical sampling in recharge areas versus lateral sampling in discharge areas: assessing the agricultural nitrogen legacy in groundwater. Presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.

Genereux, D.P. 2014. Groundwater transit times, nitrogen pollution, and nitrogen fluxes at the groundwater-stream interface. Invited seminar at the KIGAM International Symposium on Conjunctive Use of Groundwater and Surface Water, Korea Institute of Geoscience and Mineral Resources (KIGAM), Daejeon, South Korea, August 2014.

Gilmore*, T.E., D.P. Genereux, D.K. Solomon, J. Solder*, B. Kimball, F. Birgand, H. Mitasova, M. Burnette*, S. Becker*. 2014. Using groundwater discharge to assess an agricultural nitrogen legacy: three approaches to sampling in stream channels at different scales. Presented at the American Society of Agricultural and Biological Engineers Annual International Meeting, Montreal, Canada, July 2014.

Oviedo-Vargas†, D., D.P. Genereux, D. Dierick†, C.L. Osburn, S.F. Oberbauer. 2014. Effect of regional groundwater on carbon emissions from a tropical stream. Presented at the CUAHSI Biennial Colloquium, Shepherdstown, West Virginia, July 2014.

Oviedo-Vargas†, D., D.P. Genereux, C.L. Osburn, S.F. Oberbauer. 2014. Contribution of stream CO_2 and methane emissions to carbon budgets in lowland tropical watersheds with and without connections to carbon-rich deep groundwater. Presented at the Joint Aquatic Sciences Meeting, Portland, Oregon, May 2014.

Genereux, D.P. 2014. Old and young groundwaters in a Costa Rican rainforest: mixing, budgets, ages, magmatic outgassing, and carbon fluxes. Invited presentation, Department of Geological Sciences, University of Delaware, April 2014.

Gilmore*, T.E., D.P. Genereux, H. Mitasova, K. Solomon, J. Solder*, N.L. Plummer, B. Kimball. 2014. Estimating groundwater age and nitrogen fluxes through a streambed: Effects of

sampling integration scale. Presentation at the annual conference of the Water Resources Research Institute of the University of North Carolina, Raleigh NC, March 2014.

Genereux, D.P. 2014. Groundwater age, coupled water and nitrogen fluxes from aquifers to streams, and the multi-decade legacy of groundwater pollution. Invited presentation, Department of Earth and Ocean Sciences, University of South Carolina, February 2014.

Genereux, D.P. 2014. Groundwater age, coupled water and nitrogen fluxes from aquifers to streams, and the multi-decade legacy of groundwater pollution. Invited presentation, Department of Geological Sciences, East Carolina University, January 2014.

Genereux, D.P. 2014. Groundwater age, coupled water and nitrogen fluxes from aquifers to streams, and the multi-decade legacy of groundwater pollution. Invited presentation at Nicholas School of the Environment, Duke University, January 2014.

Genereux, D.P., C.L. Osburn, L. Nagy*, S.F. Oberbauer, L.D. Rojas-Jiménez*. 2013. Connection to deep groundwater alters ecosystem carbon fluxes and budgets: an example from a Costa Rican rainforest. Invited talk at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2013.

Gilmore*, T.E., J.E. Solder*, D.K. Solomon, D.P. Genereux, B.A. Kimball, M. Burnette*, S. Becker*. 2013. How sampling integration scale affects estimates of coupled groundwater and nitrogen fluxes into an agricultural stream. Presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2013.

Solder*, J.E., D.K. Solomon, T.E. Gilmore*, D.P. Genereux, and D.O. Rosenberry. 2013. Development and testing of shelby tubes as an in-situ discharge and hydraulic conductivity measurement device. Geological Society of America *Abstracts with Programs.* Vol. 45, No. 7, p.195. Presented at the Geological Society of America Annual Meeting, Denver, CO, October 2013.

Genereux, D.P. 2013. The multi-decade legacy of non-point-source groundwater pollution. Invited presentation at the University Global Partnership Network (UGPN, http://oia.ncsu.edu/ugpn) workshop on water resources, NC State University, January 2013.

Genereux, D.P. 2012. Surface water quality and the multi-decade legacy of non-point-source groundwater pollution. Invited talk at the Stormwater Group – Urban Water Consortium, Charlotte NC, December 2012 (NC municipal stormwater managers and engineers, http://www.ncsu.edu/wrri/code/partnerships/swg.htm).

Genereux, D.P., D.K. Solomon, C. Zanon*, L. Nagy*. 2012. Quantifying the role of old groundwater in the modern hydrologic cycle of a Costa Rican rainforest. Geological Society of America *Abstracts with Programs.* Vol. 44, No. 7, p.153. Invited talk at the Geological Society of America Annual Meeting, Charlotte NC, November 2012.

Genereux, D.P. 2012. Aquifer hydraulics, and the multi-decade legacy of non-point-source pollution. Invited talk at the North Carolina Forum on Nutrient Over-Enrichment, Raleigh, May 2012, for state leaders (elected, government agencies, utilities, business, NGOs), http://www.ncsu.edu/mckimmon/cpe/opd/NCFONOE/

Genereux, D.P., C.L. Osburn, S.F. Oberbauer, and L. Nagy*. 2012. Water-carbon links in a tropical rainforest: how interbasin groundwater flow affects carbon fluxes and ecosystem carbon budgets. Presentation at the DOE Terrestrial Ecosystem Science Program workshop, Washington DC, April 2012.

Koh, D.C., D.P. Genereux, and S. Becker*. 2012. Relationship between age and dissolved silica concentration in groundwater from the North Carolina coastal plain. Presentation at the annual conference of the Water Resources Research Institute of the University of North Carolina, Raleigh NC, March 2012. http://www.ncsu.edu/wrri/code/events/pastevents/ac2012.htm

Genereux, D.P. 2011. Old and young groundwaters in a Costa Rican rainforest: mixing, budgets, modeling, ages, magmatic outgassing, carbon fluxes. Invited talk, Dept. of Geology and Geophysics Distinguished Lecture Series, University of Utah, September 2011

Small, G.E., M. Ardon, E.E. Ellis, D. Genereux, P.J. Hernes, M.S. Johnson, E. Mayorga, W.H. McDowell, C.M. Pringle, and J.W. Six. 2011. A synthesis of carbon transport and processing in tropical streams and rivers: effects of global change. Presented at the American Society of Limnology and Oceanography conference, San Juan, Puerto Rico, February 2011.

Genereux, D.P. 2010. Coupled water and nitrogen fluxes through a streambed in an agricultural watershed: measurements, patterns, controls. Invited talk, CUAHSI 2nd Biennial Colloquium, Boulder, CO, July 2010

Genereux, D.P. 2010. Interbasin groundwater flow, carbon fluxes, and carbon budgets in a lowland rainforest. Invited talk, Workshop on Carbon Transport and Processing in Tropical Streams, Costa Rica, April 2010 (sponsored by the Organization for Tropical Studies and the NSF Research Coordination Networks program)

Genereux, D.P., M. Webb*, K. Solomon. 2009. Old and young groundwaters in a Costa Rican rainforest: mixing, budgets, ages, magmatic outgassing, and carbon fluxes. Invited talk, Tropical Hydrology Symposium, Panama City, Panama, March 2009 (sponsored by the U.S. Army Research Office, Smithsonian Tropical Research Institute, Autoridad Nacional del Ambiente de Panama, and Autoridad del Canal de Panama).

Genereux, D.P., M. Webb*, and D.K. Solomon. 2009. Old groundwater, interbasin groundwater flow, magmatic solutes, and hydrologic fluxes of carbon in a lowland Costa Rican rainforest. *Geophysical Research Abstracts*, Vol. 11, EGU2009-12545 (http://www.geophysical-research-abstracts.net/volumes.html). Presented at the European Geosciences Union annual conference, Vienna, Austria, April 2009.

Genereux, D.P., C.D. Kennedy*, H. Mitasova, and D.R. Corbett. 2009. Spatial and temporal dynamics of coupled groundwater and nitrogen fluxes through a streambed in an agricultural watershed. *Geophysical Research Abstracts*, Vol. 11, EGU2009-11704-1 (http://www.geophysical-research-abstracts.net/volumes.html). Presented at the European Geosciences Union annual conference, Vienna, Austria, April 2009.

Webb*, M., D.P. Genereux, and D.K. Solomon. 2008. The chemical and isotopic signature of old groundwater and magmatic solutes in a Costa Rican rainforest: evidence from carbon, helium, and chlorine. *Eos, Transactions, American Geophysical Union* 89(53), Fall Meeting Supplement, Abstract H51C-0823. Presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2008.

Genereux, D.P., C.D. Kennedy*, D.R. Corbett, and H. Mitasova. 2008. Relationships among groundwater age, denitrification, and the coupled groundwater and nitrogen fluxes through a streambed. Invited talk at the North Carolina Water Resources Research Institute Annual Conference, October 2008, Raleigh, North Carolina.

Kennedy*, C.D., D.P. Genereux, D.R. Corbett, H. Mitasova, B. Elkins*, and S. Leahy*. 2007. Spatial and temporal variability in groundwater-based nitrogen input to a stream in an agricultural watershed in North Carolina. *Eos, Transactions, American Geophysical Union* 88(52), Fall Meeting Supplement, Abstract H24F-05. Presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2007.

Elkins*, B., D.R. Corbett, C.D. Kennedy*, D.P. Genereux, S. Leahy*, H. Mitasova, and J.R. Soban*. 2007. Nutrient exchange between the riparian and hyporheic zones for a stream in a large agricultural watershed in the North Carolina Coastal Plain. *GSA Abstracts with Programs* 39(2): 32. Presented at the Geological Society of America Southeastern Section Annual Meeting in Savannah, GA, March 2007.

Kennedy*, C.D., S. Leahy*, D.P. Genereux, D.R. Corbett, H. Mitasova, and B. Elkins*. 2006. Quantifying nitrogen transport from groundwater to a stream in a large agricultural watershed in North Carolina. *GSA Abstracts with Programs* 38(7): 104. Presented at the Geological Society of America Annual Meeting in Philadelphia, PA, October 2006.

Oberbauer, S.F., D.A. Clark, D. Genereux, D. Lawrence, A. Russel, T. McGlynn, M.-L. Smith, N. Bynum, J. Espeleta, and C. Lewis. 2005. Complex interactions among water, nutrients and carbon stocks and fluxes across a natural fertility gradient in tropical rain forest. National Science Foundation Biocomplexity meeting, March 21-23, Washington DC.

Genereux, D.P., and C. Kennedy*. 2004. Groundwater ages in the Black Creek and Upper Cape Fear Aquifers. Invited talk at the North Carolina Water Resources Research Institute, Raleigh, North Carolina, October 2004.

Genereux, D.P., and M.T. Jordan*. 2004. Interbasin groundwater transfer and groundwater interaction with surface water in Costa Rica. Invited talk at the 7th INTECOL International Wetlands Conference, Utrecht, The Netherlands, July 2004.

Kennedy*, C., D.P. Genereux, and N. Plummer. 2004. Groundwater dating in confined aquifers of the North Carolina Coastal Plain. Presented at the North Carolina Water Resources Research Institute Annual Conference, March 2004, Raleigh, North Carolina.

Genereux, D.P., C. Duffy, J. Famiglietti, J. Helly, R. Hooper, W. Krajewski, D. McKnight, F. Ogden, K. Reckhow, B. Scanlon, and L. Shabman. 2003. *Eos, Transactions, American Geophysical Union* 84(46): F612. Surface water and groundwater measurements in a prototype hydrologic observatory. Invited presentation at the American Geophysical Union Fall Meeting, San Francisco, California, December 2003.

Band, L., K. Reckhow, J. Famiglietti, D. Genereux, J. Helly, R. Hooper, W. Krajewski, D. McKnight, F. Ogden, B. Scanlon, L. Shabman, and C. Duffy. 2003. Implementing a network of hydrologic observatories. *Eos, Transactions, American Geophysical Union* 84(46): F612. Invited presentation at the American Geophysical Union Fall Meeting, San Francisco, California, December 2003.

Genereux, D.P., M. Jordan*, and D. Carbonell*. 2003. Use of water and chemical budgets to quantify interbasin groundwater transfer in the lowland rainforest. *Eos, Transactions, American Geophysical Union* 84(46): F756. Presented at the American Geophysical Union Fall Meeting, San Francisco, California, December 2003.

Bolster†, C.H., D.P. Genereux, and J.E. Saiers. 2002. Use of a canal drawdown test to calculate the specific yield of the Biscayne Aquifer. *Eos, Transactions, American Geophysical Union* 83(19): S164. Invited presentation at the American Geophysical Union Spring Meeting, Washington DC, May 2002.

Genereux, D.P., and D. Carbonell*. 2001. Watershed chemical budgets and interbasin groundwater transfer in the lowland rainforest of Costa Rica. *Eos, Transactions, American Geophysical Union* 82(47): F433. Presented at the American Geophysical Union Fall Meeting, San Francisco, California, December 2001.

Childers, Daniel L, L Powell, M Rugge, J Boyer, J Fourqurean, R Jaffe, R Jones, J Trexler, W Anderson, R Chambers, D.P. Genereux, E Gaiser, C McIvor, J Meeder, J Richards, M Ross, L Scinto, F Sklar, and R Twilley. 2000. Regional controls of population and ecosystem dynamics in an oligotrophic wetland-dominated coastal landscape - The new Florida Coastal Everglades LTER project. Presented at the NSF-LTER All Scientists Meeting, Snowbird, Utah, August 2000.

Childers, D.L., J. Boyer, J. Fourqurean, R. Jaffe, R. Jones, J. Trexler, W. Anderson, R. Chambers, D.P. Genereux, E. Gaiser, C. McIvor, J. Meeder, J. Richards, L. Scinto, F. Sklar, and R. Twilley. 2000. Regional controls of population and ecosystem dynamics in an oligotrophic wetland-dominated coastal landscape: introducing a new LTER in the coastal Everglades. Presented at the meeting of the International Association for Landscape Ecology, Fort Lauderdale, Florida, April 2000.

Bandopadhyay*, I., and D.P. Genereux. 1999. Numerical investigation of lake bed seepage

patterns: Effects of porous medium and lake properties. *Eos, Transactions, American Geophysical Union* 80(46): F341-F342. Presented at the American Geophysical Union Fall Meeting, San Francisco, California, December 1999.

Zechner†, E., D.P. Genereux, and J. Saiers. 1999. The benefit of using data on canal seepage and tracer concentration in aquifer parameter estimation. Presented at the International Conference on Calibration and Reliability in Groundwater Modeling (ModelCARE 99), Zurich, Switzerland, September 1999.

Yuhr*, L., and D.P. Genereux. 1999. A combined geophysical and water quality approach to measurement of saltwater intrusion. *Eos, Transactions, American Geophysical Union* 80(17): S122. Invited presentation at the American Geophysical Union Spring Meeting, Boston, Massachusetts, May-June 1999.

Wood*, S., D.P. Genereux, and C. Pringle. 1998. Geochemical tracing of interbasin groundwater flow in lowland tropical rainforest. *Eos, Transactions, American Geophysical Union* 79(45): F322. Presented at the American Geophysical Union Fall Meeting, San Francisco, California, December 1998.

Slater*, E., and D.P. Genereux. 1998. Flow and water budgets in the L-31W and C-111 Canals near Everglades National Park, Florida. *Eos, Transactions, American Geophysical Union* 79(17): S93. Presented at the American Geophysical Union Spring Meeting, Boston, Massachusetts, May 1998.

Zechner†, E., J.E. Saiers, and D.P. Genereux. 1998. Using water and tracer flux information at canal boundaries to improve aquifer parameter estimation: Biscayne Aquifer, Florida. Annales Geophysicae 16(II): C-438. Presented at the General Assembly of the European Geophysical Society, Nice, France, April 1998.

Zechner†, E., J.E. Saiers, D.P. Genereux, J.D.A. Guardiario*. 1997. Using water and tracer flux Information at canal boundaries to improve aquifer parameter estimation: Biscayne Aquifer, Florida. *Eos, Transactions, American Geophysical Union* 78(46): F326. Presented at the American Geophysical Union Fall Meeting, San Francisco, California, December 1997.

Zechner†, E., D.P. Genereux, J.D.A. Guardiario*, and J.E. Saiers. 1997. Estimation of aquifer parameters in highly permeable limestone (Biscayne Aquifer, Florida). Proceedings of the Sixth Conference on Limestone Hydrology and Fissured Media, Volume 2, La Chaux-de-Fonds, Switzerland, 10-17 August 1997, page 199.

Genereux, D.P., J.D.A. Guardiario*, and E. Zechner†. 1997. A canal drawdown experiment and borehole flowmeter measurements for determination of hydrogeological parameters in the Biscayne Aquifer. *Eos, Transactions, American Geophysical Union* 78(17): S145. Presented at the American Geophysical Union Spring Meeting, Baltimore, Maryland, May 1997.

Genereux., D.P. 1996. Quantifying the uncertainty in tracer-based hydrograph separations. *Eos, Transactions, American Geophysical Union* 77(17): 107. Presented at the American Geophysical Union Spring Meeting, Baltimore, Maryland, May 1996.

Genereux, D.P., and J.D.A. Guardiario*. 1995. Estimating dispersivity from the spatial distribution of hydraulic conductivity in the Biscayne Aquifer of southeast Florida: Borehole flowmeter measurements and stochastic analysis. *Eos, Transactions, American Geophysical Union* 76(46): 274. Presented at the American Geophysical Union Fall Meeting, San Francisco, California, December 1995.

Genereux, D.P. 1995. Naturally-occurring tracers as indicators of the role of soil moisture in runoff. *Eos, Transactions, American Geophysical Union* 76(17): 139-140. Invited presentation at the American Geophysical Union Spring meeting, Baltimore, Maryland, May 1995.

Genereux, D.P., and C. Pringle. 1994. Contributions to streamflow from local runoff and geothermally-influenced groundwater in a lowland tropical rainforest. *Eos, Transactions, American Geophysical Union* 75(44): 261. Presented at the American Geophysical Union Fall Meeting, San Francisco, California, December 1994.

Genereux, D.P. 1993. Hydrologically mediated fluxes of radon-222 on a forested landscape in east Tennessee. *Eos, Transactions, American Geophysical Union* 74(43): 299. Presented at the American Geophysical Union Fall Meeting, San Francisco, California, December 1993.

Genereux, D.P., H.F. Hemond, and P.J. Mulholland. 1991. ^{222}Rn and Ca as tracers in a three-end-member mixing model for streamflow generation on the West Fork of Walker Branch Watershed, Tennessee. *Eos, Transactions, American Geophysical Union* 72(44): 218. Presented at the American Geophysical Union Fall Meeting, San Francisco, California, December 1991.

Hemond, H.F., D.P. Genereux, and H. Kim. 1991. Quantification of groundwater discharge, origin, and quality by in-stream mass balance. *Eos, Transactions, American Geophysical Union* 72(44): 173. Presented at the American Geophysical Union Fall Meeting, San Francisco, California, December 1991.

Genereux, D.P., H.F. Hemond, and P.J. Mulholland. 1990. Spatial variability in streamflow generation on Walker Branch Watershed, Tennessee. *Eos, Transactions, American Geophysical Union* 71(43): 1348. Presented at the American Geophysical Union Fall Meeting, San Francisco, California, December 1990.

Genereux, D.P., and H.F. Hemond. 1989. Use of naturally-occurring ^{222}Rn in tracing inflows to small streams. Presented at the American Geophysical Union Chapman Conference on Hydrogeochemical Responses of Forested Watersheds, Bar Harbor, Maine, Sept. 1989.

Hemond, H.F., D.P. Genereux, and M. Villars. 1988. Hydrologic flowpaths at Bickford Watershed: Implications for acid deposition modeling. Presented at the annual meeting of the American Society of Limnology and Oceanography.

Research Funding (D.P. Genereux lead PI unless otherwise noted)
Quantifying the time scale for persistence of GenX and other PFAS in North Carolina drinking water wells. NC Collaboratory. 15 July 2022 – 31 December 2024. $100,000. D.P. Genereux, D.K. Solomon (Univ. of Utah), D.R.U. Knappe (CCEE, NCSU).

Coastal Plain Aquifer Vulnerability To Extreme Storms And Implications For Rural Prosperity, Food Security, And Water Resource Resiliency. USDA National Institute of Food and Agriculture. 1 May 2019 – 30 April 2021. $200,000. E. Nichols (PI, FER, NCSU), D.P. Genereux, D. Shea (Biological Sciences, NCSU).

Per- and Polyfluoroalkyl Substance Testing Network. North Carolina Policy Collaboratory. 11 Sept 2018 – 30 June 2021. $378,027 total ($240,927 to D.P. Genereux). D.P. Genereux, Jackie MacDonald-Gibson (UNC-CH), Detlef R.U. Knappe (CCEE, NCSU).

Investigation of the relationship between groundwater age and PFAS concentration in North Carolina. North Carolina Policy Collaboratory. 31 July 2018 – 31 December 2020. $61,588. D.P. Genereux (NC State Univ.), Troy Gilmore (Univ. of Nebraska).

Collaborative Research: Groundwater transit time distributions: bridging the gap between advanced tracer techniques and numerical modeling. National Science Foundation. 1 June 2018 – 31 May 2021. $880,944 total ($254,441 to D.P. Genereux). Troy Gilmore (PI, Univ. of Nebraska), Aaron Mittelstet (Univ. of Nebraska), D.P. Genereux (NC State Univ.), Kip Solomon (Univ. of Utah), Vitaly Zlotnik (senior collaborator, Univ. of Nebraska).

Greensboro NC Lakes: Water Quality Pilot Studies and Pre-Design Visioning. Funded through Greensboro-area private developers, October 2017 – September 2018. $21,411. Andrew Fox (PI, Landscape Architecture, NCSU), Tarek Aziz (CCEE, NCSU), D.P. Genereux, Detlef Knappe (CCEE, NCSU), Astrid Schnetzer (MEAS, NCSU).

Towards understanding nitrate contamination risk at the regional scale: A high performance computing enabled simulation-optimization framework. NCSU Research and Innovation Seeding Funding (RISF) Program, 1 July 2016 through 30 June 30 2017. $31,250. Kumar Mahinthakumar (CCEE, NCSU) PI, Dan Obenour (CCEE, NCSU) and D.P. Genereux co-PIs.

Collaborative Research: RAPID - Integrated Precipitation and Hydrology 2014 (IPHEx) - Enhancing Coupled Observations of the Land-Atmosphere System and Educational Opportunities. National Science Foundation. 5/1/2014-10/31/2014. $18,183. Ana Barros (Duke Univ.) PI, D.P. Genereux and M.D. Petters (NCSU) co-PIs.

Water-carbon links in a tropical forest: how interbasin groundwater flow affects carbon fluxes and ecosystem carbon budgets. U.S. Department of Energy. 9/15/2011-9/14/2016. $788,331. Co-PIs Chris Osburn (NCSU), Steve Oberbauer (FIU).

Collaborative Research: Evaluating how the sampling integration scale affects field estimates of groundwater transit time and nitrogen fluxes. National Science Foundation. 6/1/2011-

5/31/2016. $638,839. Helena Mitasova NCSU co-PI, Kip Solomon PI of linked collaborative proposal from Univ. of Utah, Niel Plummer USGS senior collaborator.

Sustainable agriculture and environmental impacts on nutrient-sensitive waters: a North Carolina-Brittany collaboration. NCSU Internationalization Seed Grant, 7/1/2012-6/30/2013. Francois Birgand PI, D.P. Genereux and C.L. Osburn co-PIs. $5000.

RAPID: Quantifying the Influence of Interbasin Groundwater Flow on the Hydrologic Fluxes of Dissolved Carbon in a Lowland Rainforest. National Science Foundation. 4/1/10-3/31/11. $2066.

Biocomplexity in the Environment/Coupled Biogeochemical Cycles: Complex interactions among water, nutrients, and carbon stocks and fluxes across a natural fertility gradient in tropical rain forest. National Science Foundation. 4/05-12/09. $1.639 million ($143,097 to D. Genereux). Lead PI Steve Oberbauer (FIU), co-PIs Deborah Clark (Univ. of Missouri), David Genereux (NCSU), Deborah Lawrence (Univ. of Virginia), and Ann Russell (Iowa State Univ.). Other collaborators are Nora Bynum (American Museum of Natural History), Caroline Lewis (Fairchild Tropical Garden), Terrance McGlynn (U.C. San Diego), Marie-Louise Smith (USDA).

Acquisition of a laser diffraction particle size analyzer for research in sedimentology and biogeochemistry. National Science Foundation. 8/1/07-7/31/08. $62,600. PI Elana Leithold, co-PIs David DeMaster, David Genereux, Jingpu (Paul) Liu, and Elizabeth Nichols (all NCSU).

A multi-tracer investigation of interbasin groundwater transfer in the lowland rainforest of Costa Rica. National Science Foundation. 5/1/05-10/31/08. $234,702. Co-PI Kip Solomon (Utah), senior collaborator Niel Plummer (USGS).

Quantifying nitrogen transport from groundwater to a river in a large agricultural watershed in North Carolina. U.S. Department of Agriculture. 2003-2007. $325,000. Co-PIs Reide Corbett (ECU) and Helena Mitasova (NCSU).

Development of a prototype long-term hydrologic observatory for the Neuse watershed. National Science Foundation, through the Consortium of Universities for the Advancement of Hydrologic Science Inc. (CUAHSI). 2003-2004. $190,565. Lead PI Ken Reckhow (Duke), co-PI D. Genereux.

Pilot project on groundwater dating in confined aquifers of the North Carolina Coastal Plain. North Carolina Water Resources Research Institute (U.S. Geological Survey). 2003-2004. $39,904.

Supplemental Award: Paired watershed study of water and solute budgets in a tropical rainforest. National Science Foundation, Hydrologic Sciences Program. 2002-2003. $13,408.

Forensic hydrology: Runoff and drainage at the Drewry accident site on N.C. Highway 217. North Carolina Department of Transportation. 2001-2002. $13,308.

Paired watershed study of water and solute budgets in a tropical rainforest. National Science Foundation, Hydrologic Sciences Program. 1999-2003. $156,000.

Effects of Everglades restoration on groundwater exchange with canals in the southern Everglades. U.S. Army Research Office. 1999-2000. $105,948.

Potential for nutrient discharges to Florida Bay from wastewater handling and treatment facilities. National Park Service, U.S. Dept. of the Interior. 1999-2000. $74,708. Lead PI Rudolf Jaffe, co-PIs D. Genereux, Joseph Boyer (all at FIU).

Water and chemical budgets for two tropical rainforest watersheds. National Science Foundation, Hydrologic Sciences Program. 1998-1999. $49,526.

Field determination of groundwater and solute fluxes to streams, rivers, and canals, and evaluation of the significance for calibration and verification of numerical transport models. U.S. Army Research Office. 1996-1999. $223,900. Co-PI Jim Saiers (then at FIU, currently at Yale).

Environmental Scholarship/Fellowship and Grants Program. U.S. Dept. of Defense. 1994-1999. $68,070 (D. Genereux's portion). Lead PI Frank Schwartz (Ohio State), co-PIs D. Genereux (FIU) and several scientists at Ohio State.

Water budgets and groundwater exchange with canals in Taylor Slough, Everglades National Park. National Park Service, U.S. Dept. of the Interior. 1994-1996. $49,836.

Determination of dispersivity and hydraulic conductivity in the Biscayne Aquifer, Taylor Slough, Everglades National Park. National Park Service, U.S. Dept. of the Interior. 1993-1995. $58,266.

Graduate education of environmental scientists and engineers at FIU. 1993-1995. U.S. Environmental Protection Agency. $100,000. Lead PI (H. Fuentes), co-PIs D. Genereux and several others at FIU.

Determination of rates of solute exchange between water and soil, and implications for modeling streamflow generation. FIU Foundation. 1993. $3150.

Research grants directly to my graduate student advisees, based on their proposals
Tiffany VanDerwerker: Graduate Student Research Grant, Water Resources Research Institute of the University of North Carolina (WRRI-UNC), 2022, $10,000

Lydia Koropeckyj-Cox: First Annual MEAS GSA Graduate Student Research Grant, $500, and Sigma Xi Grant in Aid of Research, $1000

Dylana Hattenberger: Research Grant from The Geological Society of America, April 2017, $850

Kevin Clay: Research Grant from The Geological Society of America, April 2016, $2490

J. Lisa Babuin (now J. Lisa Nickels): Research Grant from the Southeastern Section of The Geological Society of America, April 2015, $630

Matt Burnette: Tilford Field Studies Scholarship from the Association of Engineering Geologists, May 2012, $2000

Supervision of Graduate Theses/Dissertations, Post-Doctoral Researchers

Jensen, Craig. 2023. Hydrogeological studies of PFAS contamination in North Carolina and gas exchange in streams in Nebraska. Ph.D. Dissertation, completion expected December 2023.

MacNamara, Markus. 2022. Groundwater ^{14}C age and tracer-based transit time distributions in the High Plains Aquifer, Nebraska. M.S. Thesis, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 85 pages.
https://www.lib.ncsu.edu/resolver/1840.20/39503

Pétré, Marie-Amélie. Post-doctoral scholar, June 2019 – June 2021. Use of field data and modeling to quantify PFAS transport in a contaminated coastal plain aquifer, including discharge to surface water.

Jensen, Craig. 2020. Estimating groundwater age in the Nebraska Sand Hills from SF_6 in stream water. M.S. Thesis, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 85 pages. https://repository.lib.ncsu.edu/handle/1840.20/38296

Duboscq, Sandrine. 2020. $^{3}H/^{3}He$ groundwater ages and discharge of per- and polyfluoroalkyl substances (PFAS) from groundwater to a stream near the Chemours Plant in Bladen County, NC. M.S. Thesis, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 72 pages.
https://repository.lib.ncsu.edu/handle/1840.20/38093

Koropeckyj-Cox, Lydia. 2019. Quantifying the transport of per- and polyfluoroalkyl substances (PFAS) from groundwater to surface water near the Chemours property in Bladen County, NC. M.S. Thesis, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 107 pages.
https://repository.lib.ncsu.edu/handle/1840.20/36724

Hattenberger, Dylana. 2018. Comparing carbon dioxide and methane emissions from restored and unrestored sections of three North Carolina streams. M.S. Thesis, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 103 pages.
https://repository.lib.ncsu.edu/handle/1840.20/35725

Clay, Kevin. 2017. Temporal variation in groundwater and VOC flux through a sandy streambed, Wilson, North Carolina. M.S. Thesis, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 85 pages.
https://repository.lib.ncsu.edu/handle/1840.20/34791

Nickels, Josephine Lisa. 2016. Coupled groundwater and volatile organic compound fluxes through a coastal plain streambed, North Carolina. M.S. Thesis, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 105 pages. http://repository.lib.ncsu.edu/ir/handle/1840.16/11241

Oviedo Vargas, Diana. Post-doctoral research scholar, June 2013 – September 2015. Coupled carbon and water fluxes in a Costa Rican rainforest, gas exchange and CO_2 degassing fluxes from streams.

Gilmore, Troy. 2015. Groundwater transit times and the fate of aquifer nitrate: Observations from sampling in stream channels and well nests in an agricultural watershed, North Carolina, USA. Ph.D. Dissertation, Department of Biological and Agricultural Engineering, North Carolina State University, Raleigh, NC, 226 pages. http://repository.lib.ncsu.edu/ir/handle/1840.16/10373

Koh, Dong-Chan. Visiting international research scholar from KIGAM, South Korea, August 2011 to December 2012. Groundwater flow, non-point-source contamination, and mineral weathering in coastal plain aquifers.

Burnette, Matt. 2013. Applicability of the Hvorslev solution in estimating streambed hydraulic conductivity from falling-head tests. M.S. Thesis, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 125 pages. http://repository.lib.ncsu.edu/ir/handle/1840.16/9030

Becker, Scott. 2013. Assessing the use of dissolved silicon as a proxy for groundwater age: a critical analysis of published data and new data from the North Carolina coastal plain. M.S. Thesis, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 175 pages. http://repository.lib.ncsu.edu/ir/handle/1840.16/8684

Nagy, Laura. 2012. Effect of interbasin groundwater flow on optical properties of DOC and watershed export of DIC and DOC in a tropical rainforest, La Selva Biological Station, Costa Rica. M.S. Thesis, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 119 pages. http://repository.lib.ncsu.edu/ir/handle/1840.16/7736

Zanon, Carlo. 2011. Watershed hydrologic modeling to assess interbasin groundwater flow in a tropical rainforest. M.S. Thesis, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 225 pages. http://repository.lib.ncsu.edu/ir/handle/1840.16/6738

Kennedy, Casey. 2008. Quantifying rates, controls, and spatiotemporal dynamics of water and nitrogen fluxes through the streambed of West Bear Creek, North Carolina, USA. Ph.D. Dissertation, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 260 pages. http://repository.lib.ncsu.edu/ir/handle/1840.16/3966

Leahy, Scott. 2007. Spatial and temporal variability of stream bed hydraulic conductivity in West Bear Creek, North Carolina. M.S. Thesis, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 117 pages.
http://repository.lib.ncsu.edu/ir/handle/1840.16/2006

Webb, Mathew. 2007. Carbon, chloride, and oxygen isotopes as tracers of interbasin groundwater flow at La Selva Biological Station, Costa Rica. M.S. Thesis, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 112 pages.
http://repository.lib.ncsu.edu/ir/handle/1840.16/1512

Kennedy, Casey. 2004. Pilot project on groundwater dating in confined aquifers of the North Carolina Coastal Plain. M.S. Thesis, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 200 pages.
http://repository.lib.ncsu.edu/ir/handle/1840.16/1541

Jordan, Michael. 2003. Effects of interbasin groundwater transfer on water and chemical budgets in lowland tropical watersheds – La Selva, Costa Rica. M.S. Thesis, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 192 pages.
http://repository.lib.ncsu.edu/ir/handle/1840.16/2304

Memberg, Steven. 2000. A comparison of methods used to determine porosity in the Gray Limestone Aquifer of south Florida. M.S. Thesis, Dept. of Geology, FIU, Miami, FL, 82 pages.

Yuhr, Lynn. 1999. Measurement of saltwater intrusion in south Florida: Comparing traditional water sampling with geophysical techniques. M.S. Thesis, Dept. of Geology, FIU, Miami, FL, 165 pages.

Wood, Sharon. 1999. Chemical tracing of geothermally-modified interbasin transfer at La Selva Biological Station, Costa Rica. M.S. Thesis, Dept. of Geology, FIU, Miami, FL, 204 pages.

Zechner, Eric. Post-doctoral research scholar, June 1996 to January 1999. Numerical modeling of groundwater flow and solute transport in the southern Everglades. Dept. of Geology, FIU.

Slater, Eric. 1996. Flow and water budgets in the C-111 and L-31W canals near the Everglades National Park, Dade County, Florida. M.S. Thesis, Dept. of Geology, FIU, Miami, FL, 459 pages.

Bandopadhyay, Indranil. 1996. Investigation of spatial patterns of groundwater exchange with lakes, using a three-dimensional numerical model. M.S. Thesis, Dept. of Geology, FIU, Miami, FL, 429 pages.

Guardiario, Jose. 1996. Determination of hydraulic conductivity and dispersivity in the Biscayne Aquifer, Taylor Slough, Everglades National Park. M.S. Thesis, Dept. of Geology, FIU, Miami, FL, 195 pages.

Courses Taught at North Carolina State University
Physical Hydrogeology (graduate). Fall 2001, Fall 2002, Fall 2003, Fall 2004, Fall 2005, Fall 2006, Fall 2007, Fall 2008, Fall 2009, Fall 2010, Fall 2011, Fall 2013, Spring 2015, Spring 2017, Spring 2018, Spring 2019, Spring 2020, Spring 2021.
Chemical Hydrogeology (graduate). Spring 2002, Spring 2003, Spring 2004, Spring 2005, Spring 2007, Spring 2009, Spring 2011, Spring 2013, Fall 2015, Fall 2017, Fall 2019.
Introduction to Hydrogeology (undergraduate). Spring 2005, Fall 2006, Fall 2007, Fall 2008, Fall 2009, Fall 2010, Fall 2011, Fall 2013, Fall 2014, Fall 2015, Fall 2016, Fall 2017, Fall 2018, Fall 2019, Fall 2020, Fall 2021, Fall 2022.
Exploring the Environment, module on groundwater contamination. Fall 2021, Fall 2022, Spring 2023, Fall 2023.
Geochemistry of Natural Waters. Fall 2023.
Environmental Geology (undergraduate). Spring 2001.

Courses Taught at Florida International University
Hydrogeology (graduate). Spring 1993, Fall 1993, Fall 1994, Fall 1995, Fall 1996, Fall 1998.
Chemical Hydrogeology (graduate). Spring 1994, Spring 1995, Fall 1997.
Hydrogeology Laboratory (graduate). Fall 1993, Fall 1994, Fall 1995.
Introduction to Hydrogeology (undergraduate). Fall 1994.
Graduate Seminar (graduate). Fall 1996, Spring 1997, Fall 1997, Spring 1998.
Environmental Geology (undergraduate). Fall 1999, Spring 2000.
Introduction to Earth Science (undergraduate). Spring 1996, Spring 1997.
Environmental Hydrology for High Schools (high school students). Spring 1996, Spring 1997.

Professional Service
Faculty grievance mediator, NC State University (24-hour training certificate in employment mediation), 2018-present
Member, Board of Directors, CUAHSI (www.cuahsi.org), 2016-2018; Board Chair Elect, Chair, and Immediate Past Chair in 2016, 2017, and 2018, respectively
UNC System rep to CUAHSI, 2011-present
Associate Director for Research, Water Resources Research Institute of the University of North Carolina system, 2009-2014
Associate Editor, *Journal of Contaminant Hydrology*, June 2006 – June 2008
Associate Editor, *Water Resources Research*, October 1998 – December 2003
Grant Program Panels:
- NSF: Hydrologic Sciences Panel, October 2018
- NSF: EAR Education and Human Resources Panel, November 2008
- NSF: Carbon and Water in the Earth System, June 2006
- NSF: Water Cycle Research, November 2004
- USDA: Watershed Processes and Water Resources, April 2004
- EPA: Information & Computing Technology for Multi-Discipline Ecosystem Modeling, 1999
- EPA/NSF: Water and Watersheds, 1996, 1997
- NSF: Regional Hydrologic Vulnerability to Global Climate Change, 1995

Other Panels:
- National Research Council: Colloquium on Hydrologic Sciences, 1997
- Everglades National Park: Ecological Effects of High Water in the Everglades, 1996

Chair:

- CUAHSI Board of Directors, 2017 (elected by the Board)
- Water Quality Technical Committee, American Geophysical Union, 10/99-12/01
- Special Sessions, American Geophysical Union Conferences, 12/95, 5/98, 12/98 (2), 12/99, 12/00, 12/01, 12/14

Member/Other:

- Board of Directors, CUAHSI, 2016-2018 (elected by CUAHSI membership)
- UNC system representative to CUAHSI, 2011-present
- Workshop on Carbon Transport/Processing in Tropical Streams, Costa Rica, April 2010
- Workshop on Tropical Hydrology, Panama, March 2009
- Science Advisory Board, MacArthur Agro-Ecology Research Center, Florida, 1999-2002
- Water Quality Technical Committee, American Geophysical Union, 1996-2001, and 2013-2014
- Expert Assistance Pool, South Florida Water Management District, 1993-1998
- Internal Executive Committee, Florida Coastal Everglades LTER, 2/00-8/00
- Workshop on IGBP Mountain Initiative in Latin America, March 2000, Papallacta, Ecuador
- Hydrologic Sciences Task Force on Water Management Issues Affecting the C-111 Basin, Dade County, Florida, 1996-1997
- Universities Council on Water Resources, FIU Delegate 1993-2000, NCSU Delegate 2011-present

Professional and Honorary Memberships

American Geophysical Union, Phi Beta Kappa, Phi Kappa Phi, Sigma Xi

Invited Presentations (* indicates student co-author)

63. Genereux, D.P. 2022. Concentrations and Mass Discharges of PFAS in Groundwater and River Water in the Cape Fear Watershed. Invited presentation, Department of Earth and Ocean Sciences, University of North Carolina at Wilmington, November 2022.
62. Genereux, D.P. 2022. Concentrations and Mass Discharges of PFAS in Groundwater and River Water in the Cape Fear Watershed. Invited presentation at the North Carolina Department of Environmental Quality, April 2022, Raleigh NC.
61. Genereux, D.P. 2021. Water mixing and source attribution. Invited presentation to the European WATSON Project on Water Isotopes in the Critical Zone, October 2021.
60. Genereux, D.P., M.A. Pétré†, L. Koropeckyj-Cox*, S. Duboscq*, D.R.U. Knappe, T.E. Gilmore. 2020. PFAS in groundwater near Chemours. Invited presentation at the Fayetteville Public Forum: PFAS Updates in Food and Ground Water, Fayetteville State University, February 2020.
59. Genereux, D.P. 2019. Quantifying coupled water and contaminant fluxes from groundwater systems to streams: field methods and examples from North Carolina. Invited presentation at the annual conference of the Water Resources Research Institute of UNC, March 2019, Raleigh NC.
58. Genereux, D.P. 2018. The nitrate goes in, but when will it come out? Groundwater transit times in the NC coastal plain. Invited presentation in the Department of Civil, Construction, and Environmental Engineering, NC State University, October 2018.
57. Genereux, D.P. 2017. The nitrate goes in, but when will it come out? Groundwater transit times in the NC coastal plain. Invited presentation in the Department of Geological Sciences, East Carolina University, September 2017.

56. Genereux, D.P. 2017. The nitrate goes in, but when will it come out? Groundwater transit times in the NC coastal plain. Invited presentation, Duke University Water Symposium on Managing Groundwater – Surface Water Interactions in the South, 24 March 2017.
55. Genereux, D.P. 2017. The nitrate goes in, but when will it come out? Groundwater transit times in the NC coastal plain. Invited presentation, Department of Earth, Atmospheric, and Planetary Sciences, Purdue University, 23 March 2017.
54. Genereux, D.P. 2016. Understanding water resources in the coastal plain: giving context to regional challenges. Invited presentation at the conference "Freshwater in the North Carolina Coastal Plain: Understanding and Preparing for 21st Century Challenges", New Bern, NC, 16 February 2016 (https://wrri.ncsu.edu/wrri-events/coastal-plain/).
53. Genereux, D.P. 2015. Field study of groundwater transit times and pollutant nitrogen fluxes at the groundwater-stream interface in the North Carolina coastal plain. Invited presentation, Department of Environmental Engineering and Earth Sciences, Clemson University, January 2015.
52. Genereux, D.P. 2014. Groundwater transit times, nitrogen pollution, and nitrogen fluxes at the groundwater-stream interface. Invited seminar at the KIGAM International Symposium on Conjunctive Use of Groundwater and Surface Water, Korea Institute of Geoscience and Mineral Resources (KIGAM), Daejeon, South Korea, August 2014.
51. Genereux, D.P. 2014. Old and young groundwaters in a Costa Rican rainforest: mixing, budgets, ages, magmatic outgassing, and carbon fluxes. Invited presentation, Department of Geological Sciences, University of Delaware, April 2014.
50. Genereux, D.P. 2014. Groundwater age, coupled water and nitrogen fluxes from aquifers to streams, and the multi-decade legacy of groundwater pollution. Invited presentation, Department of Earth and Ocean Sciences, University of South Carolina, March 2014.
49. Genereux, D.P. 2014. Groundwater age, coupled water and nitrogen fluxes from aquifers to streams, and the multi-decade legacy of groundwater pollution. Invited presentation, Department of Geological Sciences, East Carolina University, January 2014.
48. Genereux, D.P. 2014. Groundwater age, coupled water and nitrogen fluxes from aquifers to streams, and the multi-decade legacy of groundwater pollution. Invited presentation at Nicholas School of the Environment, Duke University, January 2014.
47. Genereux, D.P., C.L. Osburn, L. Nagy*, S.F. Oberbauer, L.D. Rojas-Jiménez. 2013. Connection to deep groundwater alters ecosystem carbon fluxes and budgets: an example from a Costa Rican rainforest. Invited talk at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2013.
46. Genereux, D.P. 2013. The multi-decade legacy of non-point-source groundwater pollution. Invited presentation at the University Global Partnership Network (UGPN, http://oia.ncsu.edu/ugpn) workshop on water resources, NC State University, January 2013.
45. Genereux, D.P. 2012. Surface water quality and the multi-decade legacy of non-point-source groundwater pollution. Invited talk at the Stormwater Group – Urban Water Consortium, Charlotte NC, December 2012 (NC municipal stormwater managers and engineers, http://www.ncsu.edu/wrri/code/partnerships/swg.htm).
44. Genereux, D.P., D.K. Solomon, C. Zanon*, L. Nagy*. 2012. Quantifying the role of old groundwater in the modern hydrologic cycle of a Costa Rican rainforest. Geological Society of America *Abstracts with Programs.* Vol. 44, No. 7, p.153. Invited talk at the Geological Society of America Annual Meeting, Charlotte NC, November 2012.

43. Aquifer hydraulics, and the multi-decade legacy of non-point-source pollution. Invited talk at the North Carolina Forum on Nutrient Over-Enrichment, Raleigh, May 2012, for state leaders, http://www.ncsu.edu/mckimmon/cpe/opd/NCFONOE/
42. Old and young groundwaters in a Costa Rican rainforest: mixing, budgets, modeling, ages, magmatic outgassing, carbon fluxes. Invited talk, Dept. of Geology and Geophysics, University of Utah, September 2011
41. Coupled water and nitrogen fluxes through a streambed in an agricultural watershed: measurements, patterns, controls. Invited talk, CUAHSI 2nd Biennial Colloquium, Boulder, CO, July 2010
40. Interbasin groundwater flow, carbon fluxes, and carbon budgets in a lowland rainforest. Invited talk, Workshop on Carbon Transport and Processing in Tropical Streams, Costa Rica, April 2010 (organized by the Organization for Tropical Studies, funded by an NSF Research Coordination Networks grant)
39. Old and young groundwaters in a Costa Rican rainforest: mixing, budgets, ages, magmatic outgassing, and carbon fluxes: Invited talk, Tropical Hydrology Symposium, Panama City, Panama, March 2009 (organized by the U.S. Army Research Office, Smithsonian Tropical Research Institute, Autoridad Nacional del Ambiente de Panama, and Autoridad del Canal de Panama).
38. Genereux, D.P., C.D. Kennedy*, D.R. Corbett, and H. Mitasova. Relationships among groundwater age, denitrification, and the coupled groundwater and nitrogen fluxes through a streambed. Invited presentation at the North Carolina Water Resources Research Institute Annual Conference, October 2008, Raleigh, NC.
37. Genereux, D.P., C.D. Kennedy*, D.R. Corbett, and H. Mitasova. 2008. Coupled water and nitrogen fluxes through the streambed of West Bear Creek: magnitudes, spatial and temporal variation, and controls. Invited presentation, U.S. Geological Survey, Raleigh NC, 6/25/08.
36. Genereux, D.P. Quantifying interbasin groundwater flow: Mixing of old and new groundwater in a Costa Rican rainforest. Invited presentation in the Department of Civil, Construction, and Environmental Engineering, North Carolina State University, 10/30/06.
35. Kennedy, C.D., D.P. Genereux, D.R. Corbett, and H. Mitasova. Quantifying groundwater-based nitrogen input and groundwater age for a stream in an agricultural watershed. Seminar at U.S. Geological Survey, Reston VA, 4/4/06.
34. Genereux, D.P., and C. Kennedy. Groundwater ages in the Black Creek and Upper Cape Fear Aquifers. Invited presentation at the North Carolina Water Resources Research Institute, Raleigh, North Carolina, 10/11/04.
33. Genereux, D.P., and M.T. Jordan. 2004. Interbasin groundwater transfer and groundwater interaction with surface water in Costa Rica. Invited presentation at the 7th INTECOL International Wetlands Conference, Utrecht, The Netherlands, 7/30/04. (http://www.bio.uu.nl/intecol/index2.html)
32. Marine, Earth, and Atmospheric Sciences, N.C. State University, 2/2/04
31. Genereux, D.P., C. Duffy, J. Famiglietti, J. Helly, R. Hooper, W. Krajewski, D. McKnight, F. Ogden, K. Reckhow, B. Scanlon, and L. Shabman. 2003. *Eos, Transactions, American Geophysical Union* 84(46): F612. Surface water and groundwater measurements in a prototype hydrologic observatory. Invited presentation at the American Geophysical Union Fall Meeting, San Francisco, California, December 2003.
30. Department of Civil and Environmental Engineering, University of Cincinnati, 2/7/03

29. Department of Geological Sciences, UNC Chapel Hill, 10/3/02
28. Bolster, C.H., D.P. Genereux, and J.E. Saiers. 2002. Use of a canal drawdown test to calculate the specific yield of the Biscayne Aquifer. *Eos, Transactions, American Geophysical Union* 83(19): S164. Invited presentation at the AGU Spring Meeting, Washington DC, May 2002.
27. Department of Geology, East Carolina University, 3/9/01
26. Marine, Earth, and Atmospheric Sciences, N.C. State University, April 2000
25. USDA Forest Service, Durham, NH, January 2000
24. Yuhr, L., and D.P. Genereux. 1999. A combined geophysical and water quality approach to measurement of saltwater intrusion. *Eos, Transactions, American Geophysical Union* 80(17): S122. Invited presentation at the AGU Spring Meeting, Boston, Massachusetts, May-June 1999 (D. Genereux invited, M.S. student Lynn Yuhr made presentation)
23. Organization for Tropical Studies, La Selva Biological Station, Costa Rica, November 1999
22. Wisconsin Geological Survey, February 1999
21. Georgia Institute of Technology, October 1998
20. Dept. of Earth and Environmental Sciences, Rensselaer Polytechnic Institute, June 1998
19. National Research Council Colloquium on the Hydrologic Sciences, Washington D.C., May 1997
18. College of Forest Resources, University of Georgia, May 1997
17. Miami Geological Society, September 1997
16. Dade County Agricultural Center, April 1997
15. Department of Geology, University of Florida, March 1997
14. Department of Geology, Florida International University, February 1997
13. Department of Geosciences, Pennsylvania State University, May 1996
12. Department of Earth Resources, Colorado State University, March 1996
11. Department of Forest Resources, Utah State University, March 1996
10. Department of Geology, University of Illinois, February 1996
9. Miami Geological Society, January 1996
8. Rosenstiel School of Marine and Atmospheric Science, University of Miami, January 1996
7. Genereux, D.P. 1995. Naturally-occurring tracers as indicators of the role of soil moisture in runoff. *Eos, Transactions, American Geophysical Union* 76(17): 139-140. Invited presentation at the AGU Spring meeting, Baltimore, Maryland, May 1995.
6. Department of Geosciences, University of California at Santa Barbara, May 1995
5. Department of Land, Air, and Water Resources, University of California at Davis, April 1995
4. Department of Environmental Sciences, University of Virginia, February 1995
3. Drinking Water Research Center and Southeast Environmental Research Program, Florida International University, February 1995
2. Rosenstiel School of Marine and Atmospheric Science, University of Miami, fall 1993
1. Department of Civil and Environmental Engineering, Florida International University, fall 1993

Other Positions, Experience

Gee & Jensen Engineers-Architects-Planners, Inc., West Palm Beach, FL (1995-1996)
Consultant, field determination of hydrogeological parameters on the eastern boundary of Everglades National Park

Modell Development Corp., Framingham, MA (1988-1989)
Modeling of incineration and supercritical fluid processes with ASPEN simulation software, research on sludge generation and treatment costs

MIT/ Woods Hole Joint Program in Oceanography (1984-1985)
Participant in two oceanographic research cruises, 50 days at sea; chemical/isotope analyses by solid-source mass spectrometry

Department of Chemistry, University of Delaware, Newark, DE (1983-1984)
Teaching undergraduate chemistry labs

Department of Geology and Geophysics, Yale University, New Haven, CT (summer 1983)
Research on ^{210}Pb in soils with Prof. Karl Turekian